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- (71) Applicant (for all designated States except US): **LG CHEM. LTD.** [KR/KR]; LG Twin Tower, East Tower 20, Yeouido-dong, Yeongdeungpo-gu, Seoul 150-721 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KANG, Jun-han** [KR/KR]; 354, Dong-myeon, Yeongi-gun, Chungcheongnam-do 339-860 (KR). **LEE, Won-ho** [KR/KR]; Gangbyeon Apt. 112-10, Mannyeon-dong, Seo-gu, Daejeon 302-741 (KR). **JEONG, Sang-mun** [KR/KR]; Chonggu Narae Apt. 108-1603, Jeonmin-dong, Yuseong-gu, Daejeon 305-729 (KR). **PARK, Sang-ku** [KR/KR]; Woosung Apt. 302-1106, Sadang 2-dong, Dongjak-gu, Seoul 156-773 (KR). **CHAE, Jong-hyun** [KR/KR]; Dungji Apt. 106-602, Dunsan 2-dong, Seo-gu, Daejeon 302-734 (KR).
- (74) Agent: **CHO, In-Jae**; 3rd Fl., Janghyun Bldg., 637-23, Yeoksam-dong, Gangnam-gu, Seoul 135-909 (KR).
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(54) Title: HYDROCARBON STEAM CRACKING CATALYST, METHOD FOR PREPARING THE SAME AND METHOD FOR PREPARING LIGHT OLEFIN BY USING THE SAME

(57) Abstract: Provided are a catalyst for hydrocarbon steam cracking for light olefin production and a method for preparing the same. The catalyst is a simple KMgPO_4 catalyst, a supported KMgPO_4 catalyst, or a KMgPO_4 -sintered catalyst. The simple KMgPO_4 catalyst is a catalyst containing KMgPO_4 as a catalyst component. The supported KMgPO_4 catalyst is prepared by impregnating a carrier with an aqueous solution of a KMgPO_4 precursor and the KMgPO_4 -sintered catalyst is prepared by mixing a KMgPO_4 powder or a KMgPO_4 precursor powder with metal oxide followed by sintering. Provided is also a method for producing light olefins such as ethylene and propylene by steam cracking in the presence of the catalyst. When the catalyst comprising KMgSO_4 as a catalytic component is used in olefin production, the yield of olefins is increased and the amount of cokes deposited on the catalyst is reduced, relative to a common steam cracking process. Therefore, catalyst activity can be maintained for a longer time.